CBT 432

Chest Pain

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CONTENTS

PART I – RECERTIFICATION

FOREWORD

Chest discomfort is a very common complaint prehospital providers are faced with everyday. Differentiating cardiac from non-cardiac chest discomfort can be very difficult. EMT's must initiate a complete patient assessment, be suspicious of anything that seems out of the ordinary, know how signs and symptoms differ between men and women, and listen to their gut feeling when the history and current condition warrant further evaluation; even when the patient doesn't seem acutely ill.

Cardiovascular disease continues to be the major cause of death and disability in the United States. It is estimated that more than 60 million Americans have some form of it. Each year, on average, 466,000 people die of coronary heart disease. Most cardiac arrests occur outside the hospital setting.

GOALS & OBJECTIVES

Goals

- Early recognition of patients with chest pain who may have an acute and life-threatening illness, or may have discomfort from a less acute cause.

- Meaningful intervention through prompt assessment, BLS care, and request for ALS intervention when needed.

- Safe, rapid transport to an appropriate facility.

Objectives

- Psychomotor

  Given a partner, relevant equipment, and a patient with a chest pain complaint, the EMT will demonstrate recognition and treatment as specifically identified in the King County EMS CBT and BLS Patient Care Guidelines.

- Cognitive

  After studying the Competency Based Training (CBT) 432 Chest Pain module, the EMT will verify cognitive learning by successfully completing a written or on-line test by achieving a minimum score of 70%.

Cardiac Chest Pain

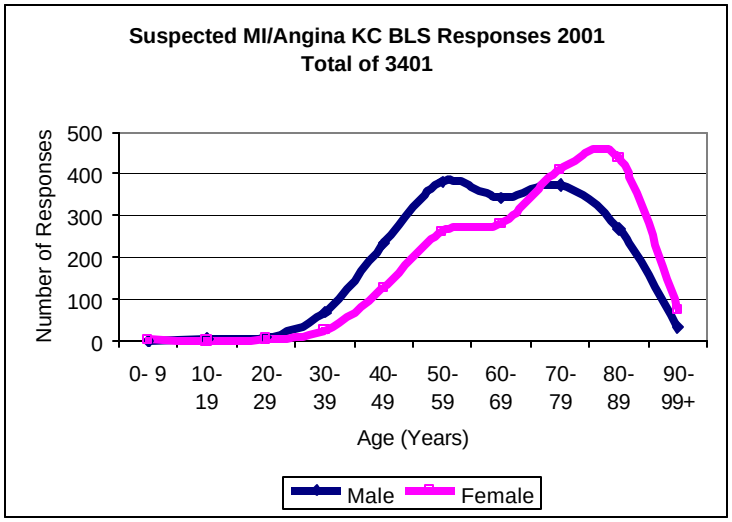


Figure 432.1
Age and gender of patients felt to have cardiac chest pain by BLS responders in 2001. 3401 patients were seen. Men presented more frequently at younger ages but women became more prevalent over age 70.

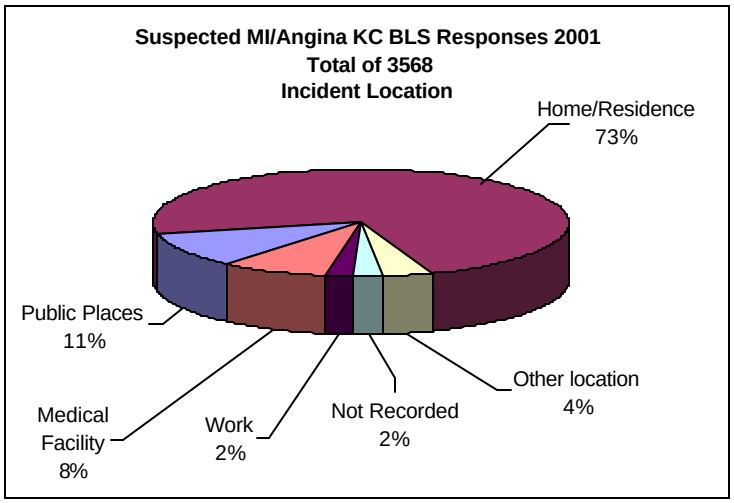


Figure 432.2
Location of incident in 3568 BLS patients found to have cardiac chest pain. The home or residence was by far the most frequent site.

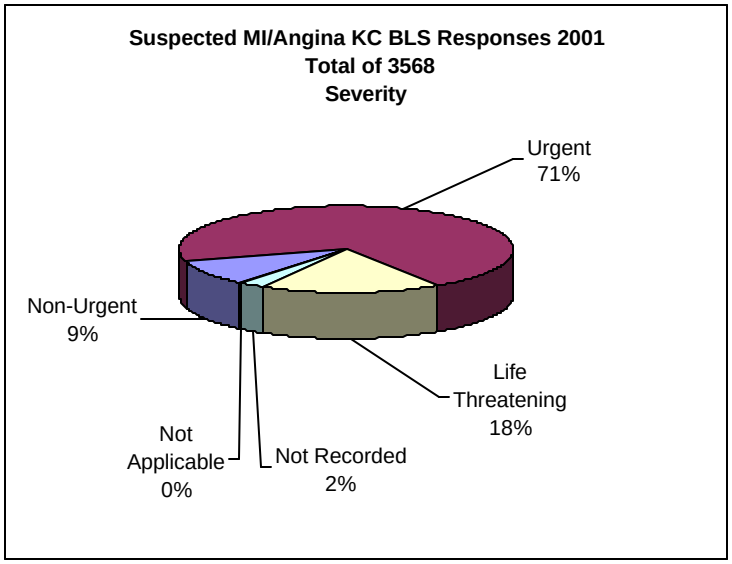


Figure 432.3
Urgency level found in 3568 BLS patients with cardiac chest pain. 89% were felt to have urgent or life threatening complaints.

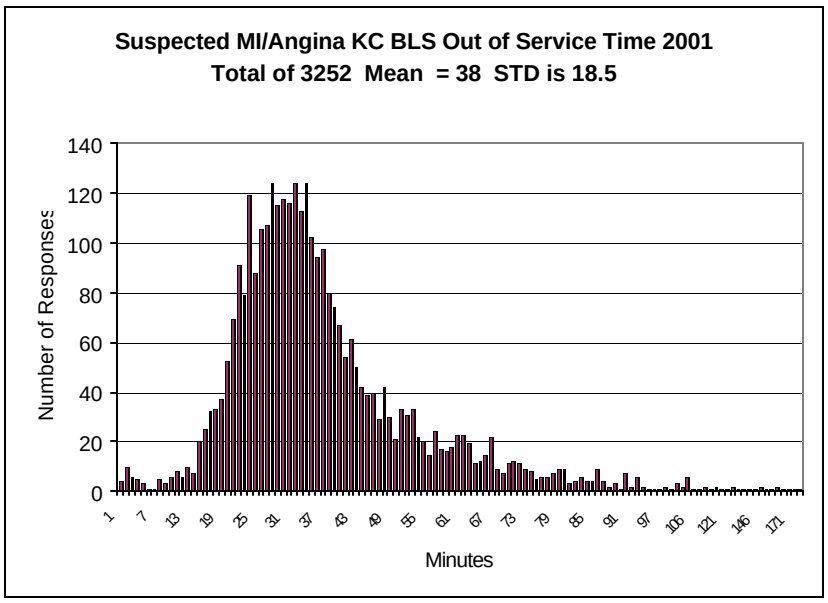


Figure 432.4
Out of service times found in 3252 patients felt to have cardiac chest pain. The mean was 38 minutes with a standard deviation of 18.5 minutes. BLS times should not be prolonged, as patients with cardiac chest pain are required to have an ALS response and transport. Out of service times of over 50 minutes should be reviewed as a QI activity. Excessively short times, less than 15 minutes should also be reviewed.

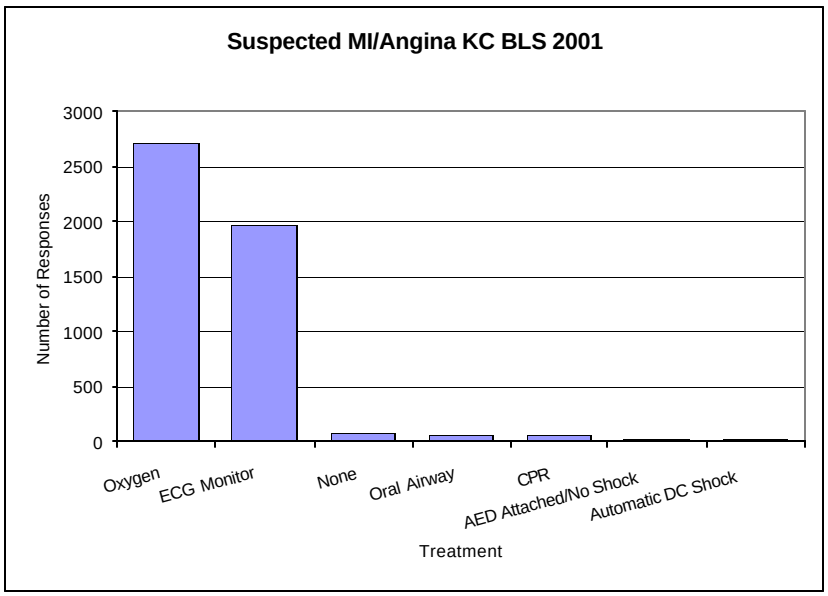


Figure 432.5
BLS treatments provided to patients with cardiac chest pain in 2001. A majority of patients received oxygen and ECG monitoring.

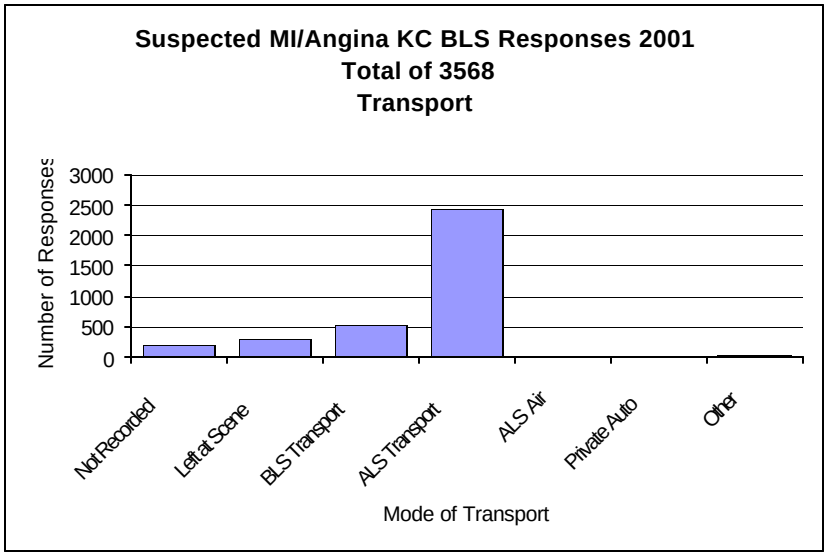


Figure 432.6
Mode of transport reported in 3568 BLS patients with cardiac chest pain. Patients with cardiac chest pain who do not receive ALS transport should be reviewed.

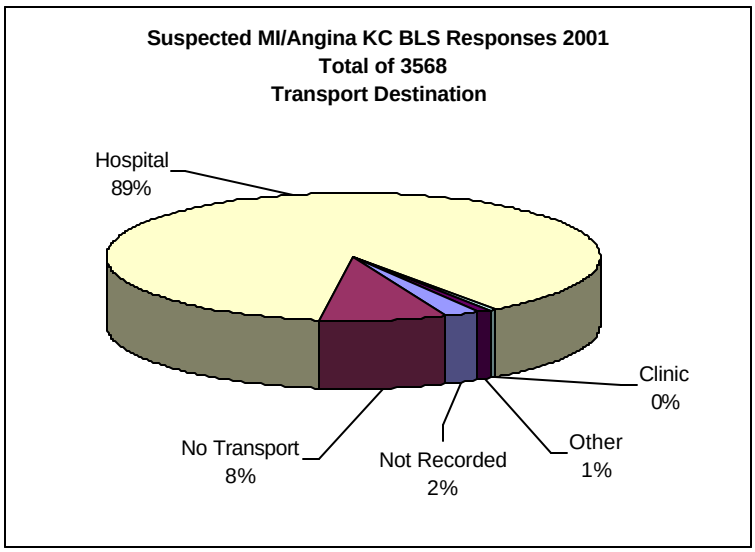


Figure 432.7
Transportation destination in 3568 BLS patients with cardiac chest pain during 2001. 89% were taken to a hospital. Patients with this diagnosis, not taken to hospital should be reviewed.

Non-Cardiac Chest Pain

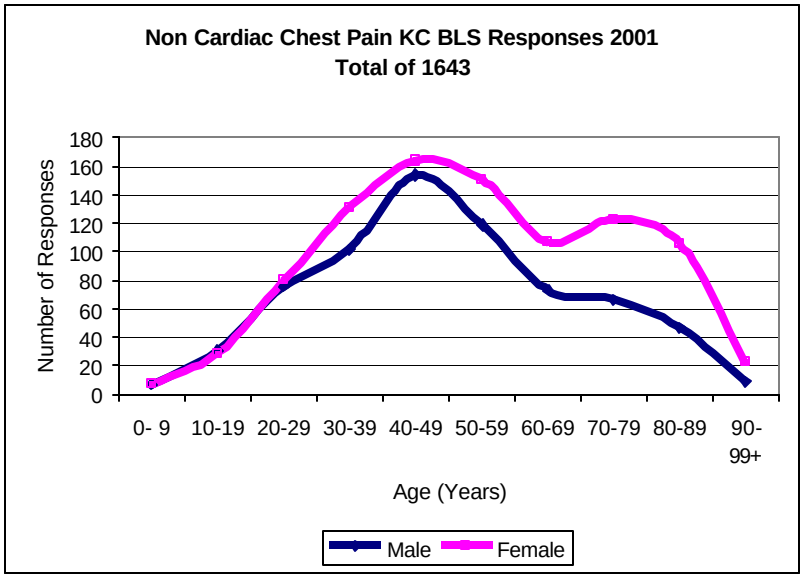


Figure 432.8
Age and gender distribution of 1643 BLS patients found to have non-cardiac chest pain in 2001. These patients are more likely to be younger and female than the cardiac chest pain group.

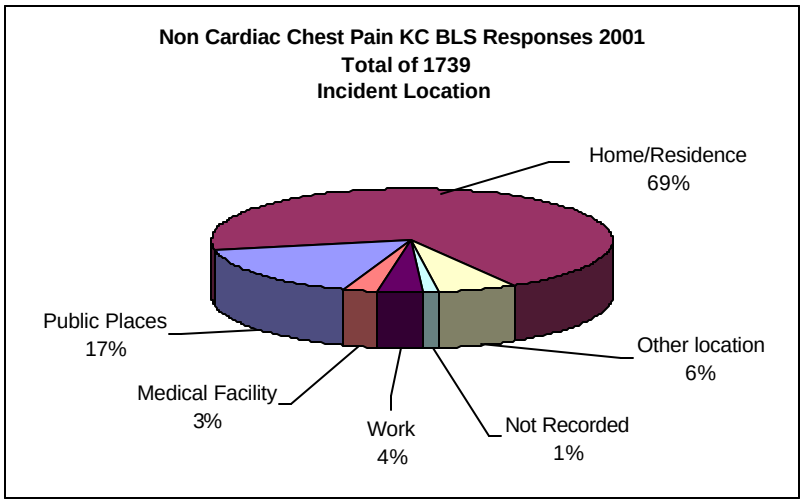


Figure 432.9
Incident location in 1739 BLS patients seen for non-cardiac chest pain. Most patients were seen in the home.

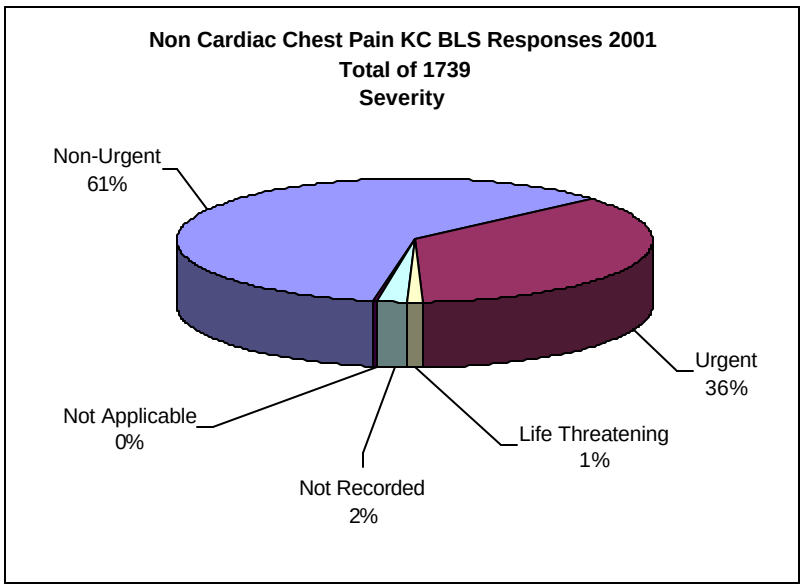


Figure 432.10
Severity level in 1739 BLS patients with non-cardiac chest pain. A majority was judged to have non-urgent complaints.

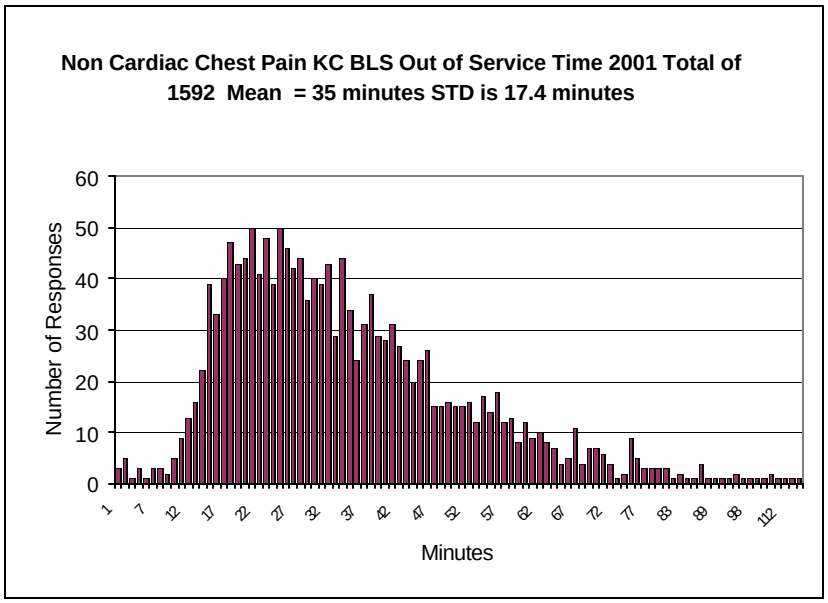


Figure 432.11
Out of service times for non-cardiac chest pain were equivalent to those with cardiac chest pain. Longer times probably relate to BLS transport.

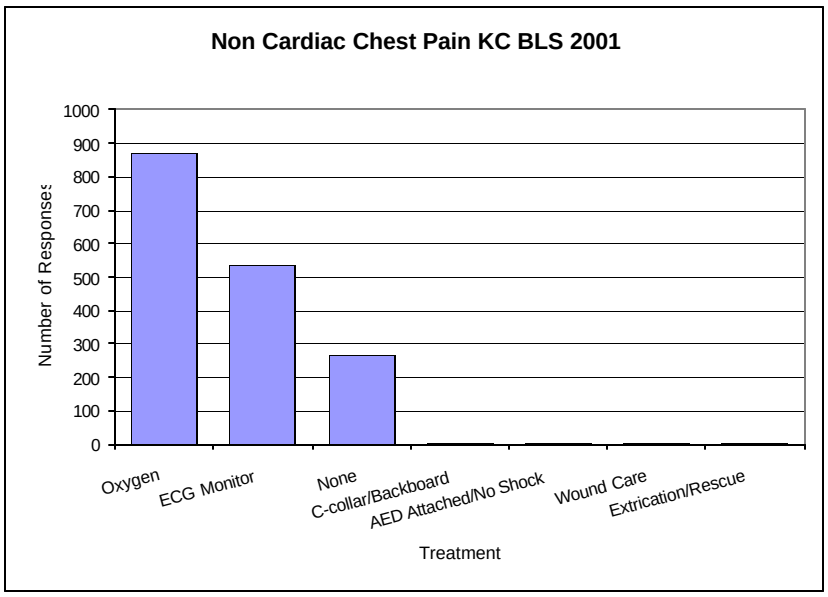


Figure 432.12
More patients with non-cardiac chest pain had no BLS treatment.

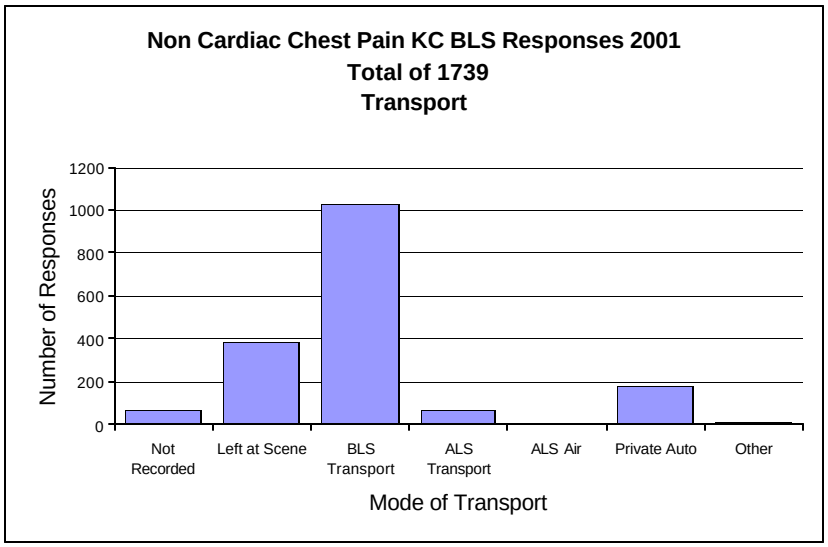


Figure 432.13
Mode of transport for non-cardiac chest pain patients shows more frequent use of BLS agencies and more patients left at scene.

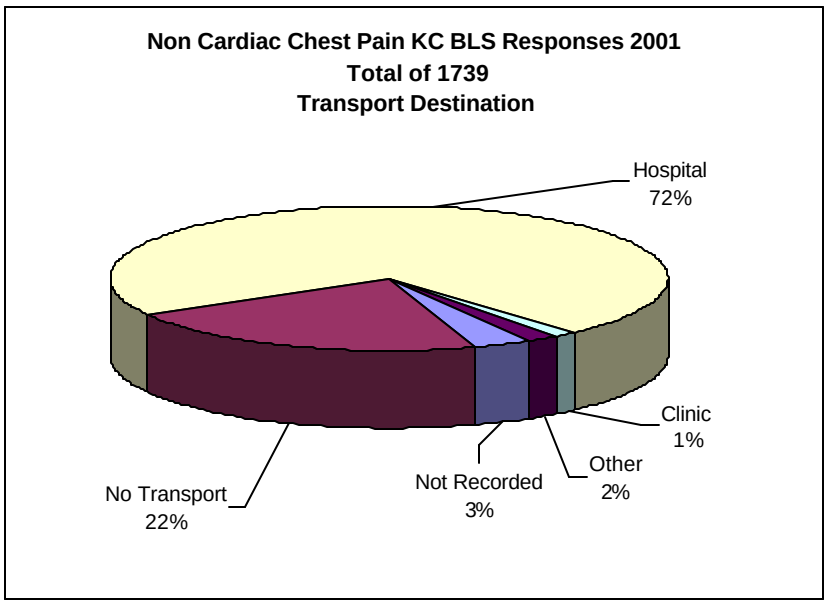


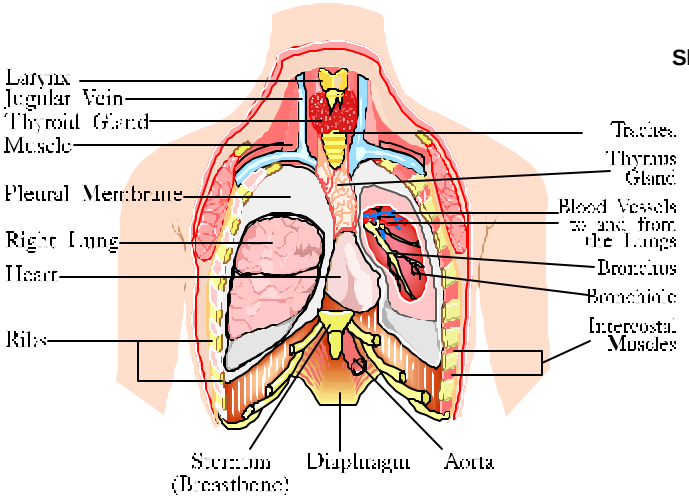
Figure 432.14
A hospital emergency room was a frequent destination for patients with non-cardiac chest pain, although 22% were left at scene.

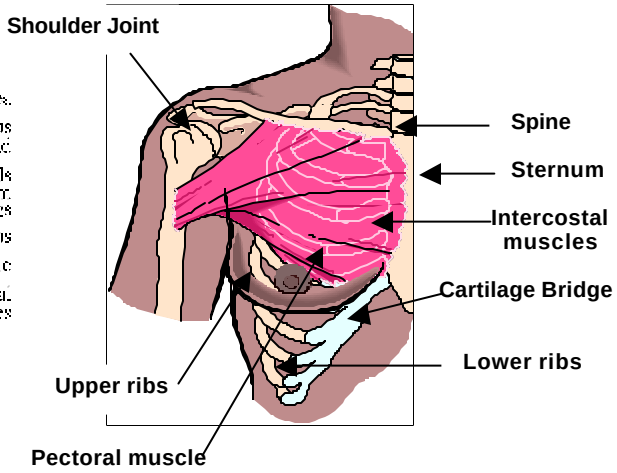
ANATOMY

An understanding of the anatomy of the chest and upper abdomen is important for the EMT. The abdomen is included in this discussion because it is a frequent site of pain referred from organs within the chest. The following section outlines the regions of the chest and their contents.

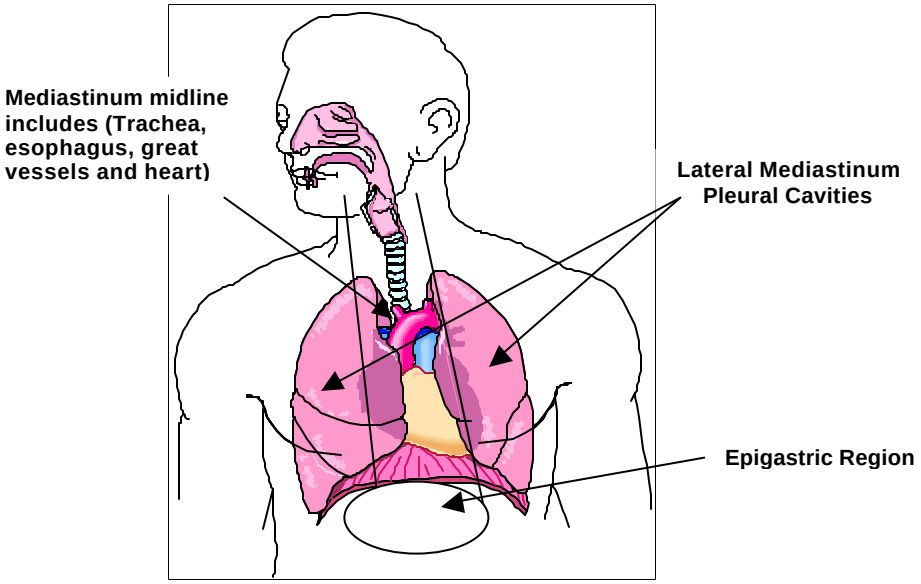
Thorax

The chest, also called the thorax, extends from the neck to the rib margins. The bones of the chest form a cavity called the ***thoracic cavity***. Twelve pairs of ribs surround the thoracic cavity. They connect to the spine and the sternum. The ribs connect to the sternum through a bridge of cartilage. The lower 5 ribs connect on each side through a long cartilage bridge called the ***costal arch***. Between the ribs are the ***intercostal muscles***, which assist in respiration. These intercostal muscles work in conjunction with the ***diaphragm***. The diaphragm separates the thoracic and abdominal cavities.



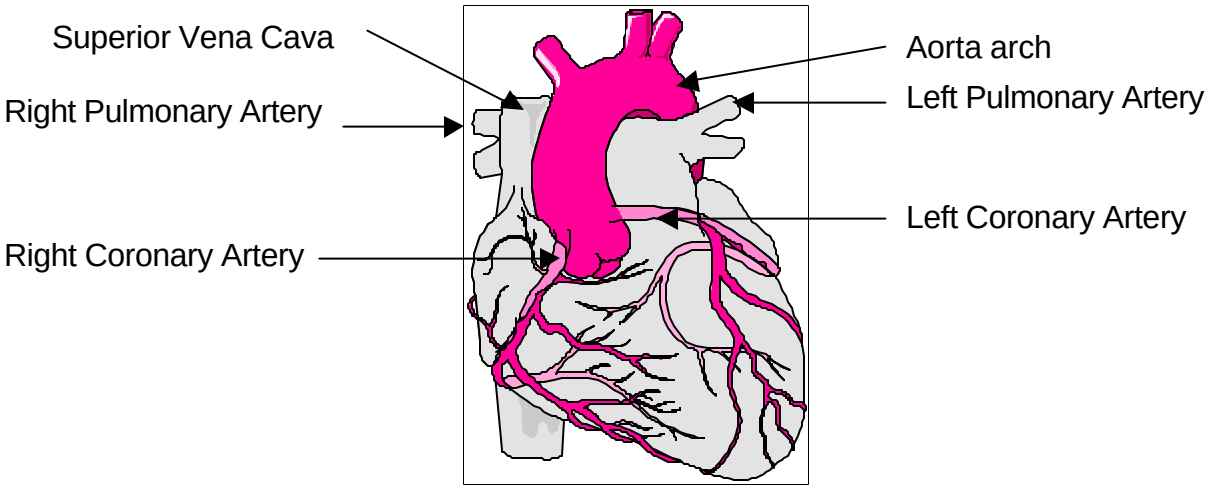


The thoracic cavity is divided into three spaces: the mediastinum and two pleural cavities.



Mediastinum

The mediastinum lies midline down the center of the thoracic cavity with the diaphragm at its base. It contains the ***trachea*****, *****esophagus***, great vessels, and the ***heart***. The great vessels consist of the ***aorta*** and the superior/inferior ***vena cava***. The heart is contained within a layer of tissue called the ***pericardium***. The heart is supplied with a system of **coronary arteries** that originate at the base of the aorta. There are two main arterial branches called the left and the right **coronary arteries**. The left branch divides into two main branches, the circumflex and the anterior descending. It feeds the left anterior (front) and lateral (side) aspects of the heart. The right branch wraps around the right side to the most inferior (back) and posterior sections of the heart. These are the pathways by which the heart receives nourishment and oxygen.



Pleural Cavities

The pleural cavities lie on either side of the mediastinum laterally. Each cavity contains one **lung**. There is a thin double-walled tissue lining the cavity called the **pleura**. One layer is the **visceral pleura**, while the other is the **parietal pleura**. The visceral pleura line the lungs. The parietal pleura line the cavity itself. There is a *potential space* that exists between each layer. A thin layer of serous fluid provides lubrication between the pleura during chest wall expansion and contraction.

PHYSIOLOGY

Cardiac Chest Pain

The myocardium (heart muscle) depends upon a constant supply of oxygen to sustain its contractile function. The balance between supply and demand of oxygen determines the functional and symptomatic state of the patient. Common clinical situations where these factors are out of balance and result in myocardial ischemia include:

- Coronary vascular obstruction by a plaque that cause stenosis (narrowing of artery)
- Coronary vascular obstruction by an occlusion from clot
- Coronary vascular obstruction by vasospasm from cocaine or methamphetamine
- Symptomatic hypotension (systolic < 90)
- Symptomatic tachycardia (> 100)
- Symptomatic bradycardia (< 60)

Medical management of this imbalance represents a medical emergency and is the reason that myocardial ischemia is an ALS indicator.

When demand exceeds supply two things happen:

- The patient develops symptoms
- Cardiac performance (heart muscle contraction) declines

Myocardial ischemia may be detected by symptoms or signs of myocardial dysfunction. The symptoms of cardiac ischemia are discussed below. Symptoms of myocardial dysfunction from ischemia include:

- Breathlessness due to heart failure
- Palpitations due to arrhythmia caused by ischemia
- Nausea and weakness due to hypotension and vagal response

Prolonged and severe ischemia leads to death of myocardial tissue (myocardial infarction).

Arterial Thrombosis

Recent understanding of heart attack and arterial occlusion has outlined the following steps in acute arterial obstruction by thrombus:

- Arterial plaque formation is caused by stress on internal lining of the artery from high blood pressure, high lipids in the blood, diabetes, smoking, and other risk factors.
- Arterial plaque is comprised primarily of lipids
- Disruption of the plaque or ulceration of the internal lining of the artery overlying the plaque occurs
- Platelets are activated to seal the disruption or ulceration
- Aggregation of platelets begins the thrombotic process (clot formation)
- Local deposition of fibrin begins and clot formation is present
- Fibrinolytic (clot desolveing) enzymes attempt to remove the clot and restore the patency of the blood vessel

This is a dynamic and rapidly changing process that explains why many patients will have very short and recurring periods of symptoms.

CLINICAL PRESENTATIONS

Conditions causing *chest pain* range in severity from minimal (e.g. a chest wall bruise) to catastrophic (e.g. a dissecting thoracic aortic aneurysm). Chest pain takes on special significance for EMT's because, in some patients, it is very difficult to differentiate between the various clinical presentations. This is particularly true in the assessment of myocardial ischemia. Chest pain may originate from the following:

1. **Pain from the chest wall**
   - Traumatic contusion
   - Muscle strain
   - Overuse syndromes – rotator cuff tear with pain radiating from the shoulder
   - Breast cysts and infections
   - Shingles – a herpetic rash characterized by redness and blisters in the distribution of a nerve segment
   - Costochondritis – inflammation of rib cartilage with pain localized to the junction of rib and cartilage
2. **Pain from the lungs and pleura**
   - Pleurisy, pneumonia, pneumothorax, pulmonary embolus
   - Asthma, bronchitis, upper respiratory infection
3. **Pain from the mediastinum**
   - Angina:
     Inadequate oxygen supply to heart muscle often caused by exertion or stress. Commonly relieved with rest and/or nitroglycerin.
   - Unstable angina (pre-infarction angina):
     Same etiology as angina, but symptoms commonly occur at rest indicating an increased degree of coronary artery obstruction or occlusion. Patients often report an increased use of nitroglycerin.
   - Myocardial infarction:
     Total occlusion of blood flow through a coronary artery resulting in myocardial tissue death (necrosis).
   - Esophagitis, esophageal spasm, heartburn, reflux (G.E.R.D)
   - Pericarditis
   - Mediastinal air from ruptured bronchus
4. **Pain referred from the abdomen**
   - Gallbladder – cholecystitis, gallstones
   - Stomach, esophagus – gastritis, esophagitis
   - Pancreas – pancreatitis
5. **Non-organic Chest Pain (Psychogenic, psychosomatic)**
   - Stress
   - Hyperventilation
   - Panic attack

Classic versus Non Classic Cardiac Chest Pain

Myocardial ischemic pain from angina pectoris or myocardial infarction may present in **classic** ways when it is described as an oppressive substernal discomfort radiating to arms and neck, but may also present in very **non-classic** ways especially in the elderly, diabetic, or female patient. In atypical presentations myocardial ischemia may be represented by breathlessness, weakness, fatigue, indigestion or even a new onset of cardiac arrhythmia. Approximately 25% of myocardial infarctions are said to be silent—that is manifest by non-classic features.

Classic	Non-Classic
- Pressure, fullness, squeezing pain in center of chest, spreading to neck, shoulder or jaw - Sweating, nausea - Shortness of breath - Produced by effort, relieved by rest	- Unusual fatigue - New unusual shortness of breath during usual activities or at rest - Nausea, dizziness - Belching, burping, indigestion - Palpitations, new arrhythmia, especially atrial fibrillation - Pain experienced **only** in jaw, neck, arm or wrist

Assisting with Nitroglycerin

The patient may be assisted in taking prescribed nitroglycerin (NTG or nitro) if the pain is the same type of pain for which he or she normally takes nitroglycerin (i.e. typical angina) and BP >100 systolic. The EMT can locate the nitro, open the container, and offer a pill to the patient. Do not administer the drug by placing the pill in the patient's mouth. The EMT may help in the same way with nitroglycerin spray. If in doubt, consult with the responding paramedic unit or with the ER physician before assisting with nitro.

The following conditions must be met before assisting with nitro:

- Complaint of pain similar to what they normally experience as angina pectoris or cardiac pain
- Blood pressure >100 systolic
- Patient takes no more than three doses total (5 minutes apart)
- The prescription expiration date should not have passed
- Patient must be sitting of lying down before assisting with nitro
- The patient should not have taken Viagra within the past 12 hours

Assisting with Aspirin (ASA)

Some patients will request assistance with the administration of aspirin in association with a severe chest pain episode. Aspirin has been shown to be useful in the early phase of myocardial infarction. If the patient has 81 or 325mg tablets of aspirin they may be assisted in the same manner as described for nitroglycerin. The patient should place one aspirin in his/her mouth, which may be swallowed with a small amount of water.

CARDIAC RISK FACTORS

THE EMT AS A HEALTH ADVOCATE

In King County there are nearly 4,000 EMS field providers. These personnel can provide a large and vital force to improve the health of King County citizens.

- EMT's should learn cardiac risk factors.
- EMT's should take responsibility for correcting their own risk factors.
- EMT's should educate themselves, their colleagues, their families and the community about risk factors and their modification.

A SYSTEMATIC APPROACH TO PATIENT CARE

(S) SUBJECTIVE	History

"CHEST PAIN" IN ANY OF ITS MANIFESTATIONS – CLASSIC OR NON CLASSIC – WILL BE THE MOST LIKELY CHIEF COMPLAINT

Symptoms

1. Discomfort
2. Pain
3. Nausea
4. Diaphoresis (sweating)
5. Shortness of Breath
6. Dizziness
7. Weakness

Onset – what was patient doing when the pain started?

- Was patient moving? – Heart, chest wall
- Was patient resting? – Heart, esophagus, stomach

Provocation – what makes it worse/better?

- Inspiration
- Palpation
- Movement
- Walking
- Work
- Exercise
- Eating
- Swallowing
- Position
- Tums or antacid
- Nothing

Quality – can you describe the pain?

- Local tenderness
- Sharp
- Squeezing
- Dull
- Pressing
- Pressure
- Colicky cramping
- Burning

Radiation – where does patient feel it, where does it go?

- Localized point discomfort
- Heart pain radiation – neck, arm, shoulder, jaw, back
- All over (non-organic)

Severity – on a scale of 1-10 (Ten being the worst)

Time – what time did the pain come on?

If the pain is truly cardiac pain, it is crucial to note the time of onset and communicate that to the medics. Cardiac pain can occur at anytime of the day, but research shows an increased rate of occurrence in the early morning hours.

Allergies – verify allergies patient may have to medications, food and/or environment

Medications – will provide clues to medical history and risk factors

Pertinent Med HX – smoking, drugs, age, high BP and cholesterol, obesity, & family history

Last Oral Intake – find out to determine the risk of emesis during treatment

Events Leading up to present emergency – what was patient doing when the pain started?

(O) OBJECTIVE	Physical Exam

- Obtain a complete set of vital signs:
- Blood pressure in both arms (Note difference greater than 10mmHg)
- General appearance (relaxed or anxious)
- Patient's position
- Skin color, moisture, temperature, rashes
- Observe respiratory rate and character
- Auscultate both lung fields (clear or absent)
- Palpate the area of complaint (does it hurt on compression)
- Inspect the area of complaint (distention may indicate trauma)

(A) ASSESSMENT	Impression

MAKE A STATEMENT OF THE PRIMARY PROBLEM AND SEVERITY OR COMPLICATIONS

Pain from the chest wall

- Traumatic contusion
- Rib fracture or bruising
- Muscle tear
- Tendon strain
- Muscle strain
- Overuse syndrome – rotator cuff tear
- Breast cysts and infections
- Shingles – a herpetic rash
- Costochondritis – inflammation of rib cage

Pain from the lungs and pleura

- Pleurisy
- Pneumonia
- Pneumothorax
- Pulmonary embolus
- Asthma
- Bronchitis
- Upper respiratory infection

Pain from the mediastinum

- Myocardial Infarction (MI)
- Angina
- Dissection of a thoracic aneurysm
- Esophagitis
- Esophagus spasm
- Heartburn
- Reflux
- Pericarditis
- Mediastinal air from ruptured bronchus

Pain referred from the abdomen

- Cholecystitis
- Gallstones
- Esophagitis
- Gastritis
- Pancreatitis

Non-organic pain (Psychosomatic)

- Stress
- Hyperventilation
- Panic attack

ALS Indicators	BLS Indicators
- Chest pain of myocardial ischemia (angina or MI) - Chest pain with respiratory distress - Hypotension (systolic blood pressure < 90) - Suspected cardiac chest pain with tachycardia - Suspected cardiac chest pain with bradycardia - Altered level of consciousness	- Chest wall pain - Non-organic pain - Pleuritic-pulmonary pain with stable vital signs and adequate ventilation - Stable/normal vital signs

(P) PLAN	Treatment

BLS CARE

- Request paramedics if indicated.
- Provide supplemental oxygen and/or ventilatory assistance as necessary.
- Assist patient with nitroglycerin if indicated.
- Position of comfort.
- Reassure patient.
- Monitor vital signs every 5 minutes.
- Monitor ECG if authorized, record strip.

TRANSPORT DECISIONS

Standard criteria for:

Leave At Scene

Except: Patients with cardiac chest pain require ALS transport to emergency room

Except: In patients with the established diagnosis of angina, who have had a typical anginal episode (i.e. lasted no longer than usual and was not more severe than usual and responded to nitroglycerin in the usual way) may be left at the scene

Privately Owned Vehicle (POV)

Except: Patients with cardiac chest pain require paramedic transport to emergency room

BLS Aid Car/Private Ambulance

Except: Patients with cardiac chest pain require paramedic transport to emergency room

ALS

Except: Patients with cardiac chest pain require paramedic transport to emergency room

DESTINATION DECISIONS
Standard criteria for: **Self-Care** Except: Patients with cardiac chest pain require paramedic transport to emergency room *Except:* In patients with the established diagnosis of angina, who have had a typical anginal episode (i.e. lasted no longer than usual and was not more severe than usual and responded to nitroglycerin in the usual way) may be left at the scene **Clinic Or Doctor's Office** Except: Patients with cardiac chest pain require paramedic transport to emergency room **Hospital Emergency Room** Except: Patients with cardiac chest pain require paramedic transport to emergency room

SHORT RADIO REPORT

IDENTIFY

- Unit/agency
- Number of patients
- Level of consciousness, age, gender
- Chief complaint
- Vital signs (respirations, pulse, blood pressure, skin color temp)
- Treatment provided

EXAMPLE

- Aid 11 Medic 23
- Conscious 53-year old female patient who is
- Complaining of chest pain and fatigue, she has no history
- Respirations 20, pulse 110, BP 130/90, skin pale and dry
- 15 Liters via non-rebreather

CASE STUDIES

CASE 1

Subjective

At 1030 hours you are called to a scene where you see a 74-y/o male c/o left upper chest pain. It is described as a constant grabbing ache (patient would punch me in the chest to give me this pain), non-radiating in nature, sharp increase in pain with respiration and cough. First noted when he got up, but worsened while eating breakfast. Pain was rated as 7/10 at the worst and decreased to 3/10 when he sat still. Experienced a brief episode of diaphoresis and nausea with onset continued weakness; denies dyspnea, dizziness or palpitations. The day prior to the call he had been cleaning out his gutters and his wife said that he worked very hard, carrying the ladder and the trash. He has a history of urinary infection, viral illness this past month with associated fatigue. Quit smoking in 1962. His medications included aspirin, Simvastatin, Doxazosin, and Viagra. Family history of heart disease.

Objective

Found patient supine on couch in living room, no apparent distress, conscious, and oriented with a GCS of 15.	
Vitals:	B/P: 170/90, bilateral RR: 16 HR: 80 Skin: warm, dry, slight pallor
HEENT:	Pearl, no JVD, trachea is midline
Chest:	Lungs are clear and equal with good exchange, pain made worse by deep inspiration, tenderness over the 5th lateral rib on the left auxiliary line.
Abdomen:	Soft, no masses
Extremities:	Good radial pulses, no edema noted, good motor/sensory all ext.

Assessment

The likely cause for this case of chest pain is:

A. Chest wall
B. Mediastinum
C. Abdomen
D. Non-organic in origin
E. Pleural cavity

Does this patient have ALS indicators?

Does this patient have BLS indicators?

Plan

Which BLS treatment measures would be appropriate for him?

1. Oxygen therapy
2. Position of comfort
3. Assist with medication—aspirin
4. Assist with medication—nitroglycerin
5. Immobilization on backboard

6. Request paramedics
7. Approve POV transport to local urgent care clinic
8. BLS transport

CASE 2

Subjective

At 1530 you are called to see a 76 y/o female c/o Left arm "tingling and aching" with onset today at approx. 1130 hr. while shopping. Initially she had to sit down to catch her breath. She continues to feel a little of the discomfort and would like to rest. Her daughter thought she should call 911. Patient also c/o a need to belch. She has never been thought to have heart disease but does have a history of hiatal hernia. Medications include aspirin, Mevacor, Glyburide, Tums, and Prinivil.

Objective

Patient is in semi-sitting position in bed, conscious, oriented, and anxious with warm, dry, pink skin.	
Vitals:	B/P: 170/80 RR: 18 HR: 118, weak Skin: cool, dry, pink skin
HEENT:	Patch over left eye secondary to cataract surgery, no JVD
Chest:	clear and equal bilat, no change in the discomfort with motion
Abdomen:	soft, non-tender, no masses
Extremities:	good motor/sensory, no edema noted

Assessment

The likely cause for this case of chest pain is…

A. Chest wall
B. Mediastinum, myocardial ischemia
C. Mediastinum, esophagitis
D. Abdomen
E. Non-organic in origin
F. Pleural cavity

Does this patient have ALS indicators?

Does this patient have BLS indicators?

Plan

Which BLS treatment measures would be appropriate for him?

1. Oxygen therapy
2. Position of comfort
3. Assist with medication—aspirin
4. Assist with medication—nitroglycerin
5. Immobilization on backboard
6. Request paramedics
7. Approve POV transport to local urgent care clinic
8. BLS transport

CASE 3

Subjective

48 y/o male history of MI last February, c/o left chest discomfort "achy" in nature with radiation down back of left arm. Onset while at rest watching TV. Patient became dizzy, diaphoretic, and pale per wife. Patient denies dyspnea, nausea, vomiting, palpitations, weakness or syncope. Pain is similar in nature to previous MI. Has had no chest pain since last February. His medications are nitroglycerin as needed (none today) Lipitor, metoprolol, lisinopril and aspirin.

Objective

Patient is lying on floor with feet on chair, conscious, oriented.	
Vitals:	B/P: 102/74, RR: 20, HR: 72 Skin: pale, dry
HEENT:	Pearl, no JVD, trachea is midline
Chest:	Clear and equal bilateral, pain is constant without change with respirations, effort, and palpation
Abdomen:	Soft, non-tender, and no masses
Extremities:	No deficits noted

Assessment

The likely cause for this case of chest pain is…

A. Chest wall, muscle strain
B. Mediastinum, myocardial ischemia, angina, or infarction
C. Mediastinum, reflux esophagitis
D. Abdomen
E. Non-organic in origin, stress
F. Pleural cavity

Does this patient have ALS indicators?

Does this patient have BLS indicators?

Plan

Which BLS treatment measures would be appropriate for him?

1. Oxygen therapy
2. Position of comfort
3. Assist with medication—aspirin
4. Assist with medication—nitroglycerin
5. Immobilization on backboard
6. Request paramedics
7. Approve POV transport to local urgent care clinic
8. BLS transport

CASE 4

Subjective

34-y/o female without previous history. C/O chills and dizziness X 3 days with associated intermittent "Sharp" pinpoint chest pain and tingling in fingers and lips. Patient reports increased stress over past couple of weeks. Came home early from work Friday, didn't feel right, c/o some lightheadedness. Last night had tight feeling in chest that lasted one hour then went away. Today has had two episodes of the same pain in mid chest lasting from 5 to 10 minutes with shortness of breath, some tingling in fingers and lips with discomfort. Denies nausea, vomiting and diaphoresis. Remainder of history is negative. No medications, No allergies.

Objective

Patient sitting in chair, conscious, oriented.	
Vitals:	B/P: 130/98 RR: 16 HR: 88 Skin: warm, pink, dry
HEENT:	No JVD, and trachea midline
Chest:	Clear and equal bilat, no pain to palp
Abdomen:	Soft, non-tender, and no masses
Extremities:	Good motor/sensory x 4, no edema noted

Assessment

The likely cause for this case of chest pain is…

A. Chest wall
B. Mediastinum
C. Abdomen
D. Non-organic in origin
E. Pleural cavity

Does this patient have ALS indicators?

Does this patient have BLS indicators?

Plan

Which BLS treatment measures would be appropriate for him?

1. Oxygen therapy
2. Position of comfort
3. Assist with medication—aspirin
4. Assist with medication—nitroglycerin
5. Immobilization on backboard
6. Request paramedics
7. Approve POV transport to local urgent care clinic
8. BLS transport

CASE 5

Subjective

At 0300 you are called to see a 38-year-old male bricklayer with the complaint of sudden onset aching pain in his left upper chest and left upper arm. He has had a similar feeling several times in the last few weeks but it usually went away with rest. He smokes two packs per day and admits to use of recreational drugs. There is a family history of heart disease. No medications and no allergies. His examination is normal but the pain is worse with motion of his left arm.

Objective

Patient found lying in bed, anxious, A&Ox3	
Vitals:	B/P: 188/104 RR: 20 HR: 110 Skin: Cool, pale
HEENT:	No JVD, and trachea midline
Chest:	Clear and equal bilat, no pain to palp
Abdomen:	Soft, non-tender, and no masses
Extremities:	Good motor/sensory x 4, no edema noted

Assessment

The likely cause for this case of chest pain is…

A. Chest wall
B. Mediastinum, myocardial ischemia
C. Mediastinum, esophagitis
D. Abdomen
E. Non-organic in origin
F. Pleural cavity

Does this patient have ALS indicators?

Does this patient have BLS indicators?

Plan

Which BLS treatment measures would be appropriate for him?

1. Oxygen therapy
2. Position of comfort
3. Assist with medication—aspirin
4. Assist with medication—nitroglycerin
5. Immobilization on backboard
6. Request paramedics
7. Approve POV transport to local urgent care clinic
8. BLS transport

PART II – MASTERY LEVEL

PATIENT SELF ASSESSMENT RISK FOR HEART ATTACK

1. How old are you?
   a. 25-35 (1 point)
   b. 36-45 (1 point)
   c. 46-55 (2 points)
   d. 56-65 (3 points)
   e. 66-75 (4 points)
2. Do you have a family history of early coronary artery disease (a mother or sister who was younger than sixty or a father or brother younger than fifty when he or she had a first heart attack or symptoms of a heart attack)?
   a. No (0 points)
   b. Yes (2 points)
3. Do you have high blood pressure (blood pressure equal to or higher than 140/90)?
   a. No (0 points)
   b. Yes (1 point)
   c. don't know (1 point)
4. Do you have diabetes or elevated blood sugar?
   a. No (0 points)
   b. Yes (3 points)
5. Are you physically active?
   a. I accumulate approximately thirty minutes of moderate aerobic activity (walking, going up stairs, vacuuming, dancing, gardening, aerobics, swimming, cycling, spinning, or jogging) almost every day. (0 points)
   b. I exercise only occasionally; I accumulate thirty minutes of aerobic activity one or two days per week. (1 point)
   c. I rarely engage in regular moderate aerobic physical activity. (2 points)
   d. I never engage in moderate physical activity. (3 points)
6. Which of the following best describes your total cholesterol?
   a. Less than 200 mg/dL (0 points)
   b. 201-239 mg/dL (1 point)
   c. Greater than 240 mg/dL (2 points)
   d. Don't know (2 points)
7. Which of the following best describes your HDL (good) cholesterol?
   a. Less than 45 mg/dL (2 points)
   b. 45-49 mg/dL (1 point)
   c. 50-59 mg/dL (0 points)
   d. Greater than 60 mg/dL (1 point)
   e. Don't know (2 points)
8. Which of the following best describes your LDL (bad) cholesterol?
   a. Less than 100 mg/dL (1 point)
   b. Less than 130 mg/dL (0 points)
   c. Greater than 160 mg/dL (1 point)
   d. Don't know (1 point)

9. Which of the following best describes your triglyceride level?
   a. 150-999 (mg/dL (1 point)
   b. 200-250 mg/dL (1 point)
   c. Greater than 250 mg/dL (2 points)
   d. Don't know (1 point)
10. Do you smoke?
   a. Yes (3 points)
   b. Smoked previously, stopped within the last year (2 points)
   c. Smoked previously, stopped five years ago (1 point)
   d. Smoked previously, stopped ten or more years ago (0 points)
   e. No (0 points)
11. Are you a postmenopausal woman with a history of heart disease or stroke?
   a. Yes, and I am not on hormone replacement therapy. (2 points)
   b. Yes, and I am currently on hormone replacement therapy. (1pt.)
   c. I am not postmenopausal. (I am still having periods regularly. (0 points)
12. On the following chart, find height in the row on the left. Read across the row to the column that equals weight. The box where the row and column cross represents BMI, or body mass index, which is considered a better indicator of "fatness" than weight alone.

    What is your body mass index (BMI)?
   a. 18-22 (0 points)
   b. 22-24 (1 point)
   c. 25-30 (2 points)
   d. 31-35 (3 points)
   e. Higher than 35 (4 points)
13. How would you describe the way you handle anger?
   a. I avoid getting to the breaking point (0 points)
   b. I yell or slam doors. (1 point)
   c. I always hold my anger in. (2 points)

Interpreting Patient's Score

1. 0 – Great! You are presently healthy.
2. 1 – 10. You have a low risk, but it pays to investigate the areas where you amassed points and modify your lifestyle accordingly.
3. 11 – 20. You have a moderate risk.
4. Greater than 20. You have a high risk for heart disease. Though you may feel well now, it is suggested that you get a complete physical as soon as possible.

Assess Your Risk for Heart Attack Body Mass Index (BMI) Table

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Height (inches)	Body Weight (pounds)																
	Normal Range						*Overweight*					*Obese*					
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179
61	100	106	111	116	122	129	132	137	143	148	153	158	164	169	174	180	185
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287

RESOURCES AND REFERENCES

http://www.chestpainperspectives.com/

http://www.acc.org/login/index.taf

http://www.centerwatch.com/

http://www.nih.gov/

http://www.nejm.org/content/index.asp

http://www.lungusa.org/

http://www.stroke.org/

http://www.mco.edu/whl/

http://www.bloodpressure.com/

http://cvdinfobase.ic.gc.ca/

http://www.who.org/

http://www.worldheart.org/

http://www.globalcardiology.org/

http://www.nlm.nih.gov/

http://cardiology.medscape.com

KING COUNTY EMERGENCY MEDICAL SERVICES **RECERTIFICATION**	**SKILLS CHECKLIST** **CBT 432 CHEST PAIN**

EMT NAME & #	PLEASE PRINT YOUR NAME	**DATE**	

Goal: Early recognition, meaningful intervention, and safe rapid transport to ER.

Objective: Given a partner, equipment and a patient with chest pain demonstrate treatment as specifically identified in the KCEMS CBT & BLS Patient Care Guidelines.

SCENE SIZE-UP

✍✍Scene Safety	✍✍Body Substance Isolation	✍✍Additional Resources

INITIAL ASSESSMENT

✍✍Level of Consciousness	✍✍Airway	✍✍Breathing	✍✍Circulation	✍✍Defibrillation

SUBJECTIVE (FOCUSED HISTORY)

✍✍Established report with patient and obtained consent to treat
✍✍Reassured and calmed patient
✍✍Obtained names of current medications
✍✍Found out patient's chief complaint and followed **SAMPLE** & **OPQRST** investigation

OBJECTIVE (FOCUSED PHYSICAL EXAM)

✍✍Recorded and documented baseline vital signs
✍✍Examined HEENT
✍✍Followed up with second set of vital signs and compared to baseline vital signs
✍✍Attached cardiac monitor and recorded strip, if authorized

ASSESSMENT (IMPRESSION)

✍✍Stated type of "chest pain"
✍✍Determine if ALS indicators present

PLAN (TREATMENT)

GENERAL CARE

✍✍Positioned patient appropriately
✍✍Administered appropriate O2
✍✍Assisted with Nitro if BP ^100
✍✍Assisted with a BVM if appropriate
✍✍Suctioned if necessary
✍✍Prepared patient for transport
✍✍Monitored patient's vitals

ADMINISTRATION OF NITRO

✍✍Asked patient and checked prescription info
✍✍Positioned patient before admin meds
✍✍Checked Nitro expiration date & dosage
✍✍Handed Nitro to patient
✍✍Checked for effectiveness (did it burn?)
✍✍Monitored and documented V/Signs

COMMUNICATION

✍✍Delivered short radio report within 60 seconds

DOCUMENTATION

✍✍Completed **SOAP** narrative portion of Medical Incident Report.

RECERTIFY	YES?	NO?	**EVALUATOR**	PLEASE PRINT YOUR NAME AND SIGN